regional boards set waste discharge requirements for all surface dischargers and all discharges to ground water if there is a threat to water quality (fresh water injection to maintain a hydraulic barrier against sea water would not constitute a threat, for example, whereas reclaimed waste water used for the same purpose would). These discharge requirements are contained in a permit that places effluent standards on what can be discharged and that sets a timetable for any required treatment upgrading. The permit usually establishes a schedule of monitoring and reporting requirements, the reports to be made under penalty of perjury. Enforcement powers provided to the state and regional boards include the capability to take polluters to court and to levy fines directly (up to $5000 per day). As a matter of course, cleanup orders are issued first, in an attempt to deal with the problem— fines are used as a last resort. Water quality standards adopted under the Basin Plans are reviewed by regulation at three-year intervals and updated as necessary. This process is the subject of public hearings.

Rule-making to promulgate standards varies widely. For example, in California, as stated previously, ambient ground water quality standards are set by the nine regional boards acting under the aegis of the State Water Resources Control Board. On the other hand, drinking water standards are established and monitored by the State Department of Health Services (DOHS). Where possible, the DOHS uses federal standards as their own. However, because national drinking water standard development has lagged behind the actual measurement of synthetic trace organics in wells, the DOHS has resorted to the use of "action levels" based on the judgment of its professional staff, and criteria published by the EPA, the National Research Council, or others. Whereas the ambient and drinking water standards are attended by formal rule-making procedures, the setting of action levels may occur on an ad hoc basis.

Conclusions and Recommendations

Water quality standards are set at various levels of government and for different purposes. Federal drinking water standards apply to all public drinking water supplies. Additional standards for drinking water at the point of use may also be adopted by states.

Depending on their policy, states may apply numerical standards directly to ground water. These may be designed to protect drinking water, other beneficial uses, and critical ecological systems. They may also be used to define nondegradation of high-quality waters. In some cases a safety factor is built in, where the standard is set at a fraction of the enforcement limit. This allows for future growth and the uncertainty associated with ground water protection technology.